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Inventor: same as applicant

Title in German of the object of the invention: Schallschutzelement

## SOUNDPROOFING ELEMENT

The invention pertains a soundproofing element.

At present, materials such as, e.g., open-cell or closed-cell foamed plastic, nonwoven fleece, felt, fiber mats, but also composite (laminated) sandwich foils\* [\* Translator=s note: A.k.a. as multilayered thin films] , deformed into cellular structures, are preponderantly used at present for soundproofing. The disadvantage of these known soundproofing elements consists in the relatively high manufacturing costs of the materials thus used, or associated with the

manufacturing of the soundproofing element itself.

It is an object of the invention to create a soundproofing element that can be manufactured at lower costs.

In accordance with the invention, the set objective is resolved by using plastic particles, which are essentially connected only at their points of contact, and, otherwise, are separated from one another by void spaces or interstices. Plastic particles can be made in a simple way, and, subsequently, be produced at low cost, especially when waste plastic is used as source material.

Another cost benefit is achieved when plastic particles are used for the soundproofing element, which consist of thermoplastic plastic, and are hot sealed to one another at their point of contacts. Such a soundproofing element can be made in a very cost-saving way as a result of the fact that the [plastic particles of thermoplastic plastic are introduced into a mold, corresponding to the soundproofing element, and are heat-sealed in this mold at the points of contact by means of hot air, whereby the hot air is preferably blown through or bubble through the interstices between the plastic particles.

Additional features and advantages of the invention are deduced out of the remaining subclaims.

The invention is elucidated in greater detail by means of a preferred exemplified embodiment, while reference is made to the drawing, wherein

Fig. 1 is a perspective of a preferred exemplified embodiment of the soundproofing element in accordance with the invention, and

Fig. 2 is a partial section of a perspective of a mold for the manufacturing of the soundproofing element, depicted in Fig. 1

The soundproofing element 1, depicted in Fig. 1, is designed as plate of essentially uniform thickness, and consists of a multiple number of plastic particles 2, e.g., having the form and size of pebble stones, which are connected to one another at their points of contact, and otherwise. Are separated from one another by void spaces. The material used are plastic wastes, having a specific weight of  $2.3 \text{ g/cm}^3$ . Due to the material used, the shape and the mutual arrangement of the plastic particles together with the interstices between them, there is generated a very adequate soundproofing effect.

For the manufacturing of the soundproofing element 1 in accordance with the invention, there is used the mold, consisting of two parts, depicted in Fig..2, and consisting of a lower part 3 and an upper part 4. In the lower part 3, there is worked out a mold cavity, corresponding to the shape of the soundproofing element 1. The upper part 4 is designed as plate for the covering of the lower part 3. The latter one has more connecting short-branch pipes 5 for the blowing through of hot air, which are discharging into the mold cavity, and a number of non-diagrammatically represented deaeration openings. For the manufacturing of the soundproofing element in accordance with the invention, the plastic particles 2 are filled into mold cavity in the lower part 3 of the mold. After the sealing of the mold cavity by superimposition of the upper part 4 upon the lower part 3, the connecting short-branch pipes 5 are connected to a non-diagrammatically represented hot-air feed-inlet. The hot air, ingressing through the connecting short-branch pipes 5 into the mold cavity, and egressing out of the mold cavity by way of the deaeration openings, is blown through the interstices between the plastic particles 2, as a result of which the latter are hot sealed to one another at their contact points. As soon as this process step is completed, the finished soundproofing element 1 is removed out of the lower part 3, after the upper part 4 has

[already] been removed.

### Patent Claims

1. Soundproofing element, **characterized by** plastic particles (2), which are essentially connected to one another only at their contact points, and, otherwise are separated from one another by void spaces or interstices.

2. Soundproofing element as claimed in claim 1, characterized in that the plastic particles (2) are made of waste plastic.

3. Soundproofing element as claimed in claim 1 or 2, characterized in that the plastic particles (2) consist of thermoplastic plastic, and are heat-sealed [thermally sealed] at their contact points.

4. Soundproofing element as claimed in at least one of the preceding claims, characterized in that the plastic particles (2) consist of plastic, having a specific weight greater than  $1.1 \text{ g/cm}^3$ .

5. Soundproofing element as claimed in claim 4, characterized in that the plastic particles (2) consist of plastic, having a specific weight of approximately  $1.8$  to  $2.3 \text{ g/cm}^3$ .

6. Soundproofing element as claimed in at least one of the preceding claims, characterized by the shape of a plate.

7. Soundproofing element as claimed in at least one of the preceding claims,

characterized in that the plastic particles (2) , are made of thermoplastic plastic, introduced into a mold (3, 4), corresponding to the soundproofing element (1), and are thermally sealed at their contact points while in the mold.

8. Soundproofing element as claimed in claim 7, characterized in that the hot air is blown through the interstices between the plastic particles (2).

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FIG. 1

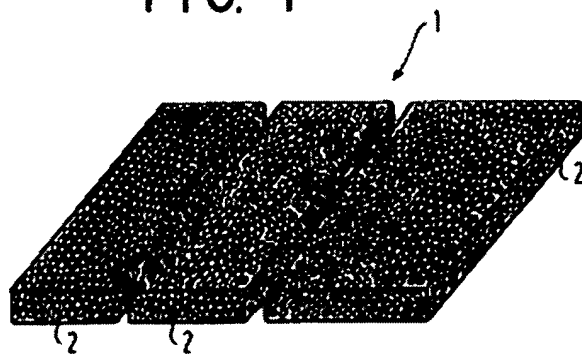


FIG. 2

